

Beginnings of Village-Farming Communities in Southeastern Turkey

(Near Eastern excavations/plant and animal domestication/perennial settlements/early architecture and metal working)

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ABSTRACT Since the end of World War II, much evidence has accrued of the primary phase of village-farming community life in Southwestern Asia, which began about 7000 B.C. The remains of (usually) several of the positively domesticated animals (dog, sheep, goat, pig) and plants (wheat, barley, legumes such as peas and lentils) assure us that these settlements were based on effective food production, although collected wild foods also remained a significant portion of the human diet. Evidence of a transitional phase (or phases) that must have immediately preceded the primary phase of effective food production has, however, remained very elusive. Part of a breakthrough appears to have been made in the autumn 1970 field campaign at Çayönü Tepesi in southeastern Turkey, where the expansion and deepening of earlier exposures has yielded evidence that may span a significant portion of the transition.

Since 1947, the prehistoric projects of the Oriental Institute of The University of Chicago in Iraq, in Iran, and (jointly with Istanbul University) in Turkey have had as their research focus the reclamation of evidence of the ancient ecological and cultural conditions within which effective food-production was achieved in Southwestern Asia. Various other expeditions, both foreign and Near Eastern, have joined in this search and much has already been learned of certain early village-farming community sites. These yield the remains of already domesticated plants and animals, and date back to about 7000 B.C. Evidence of what must have been immediately prior phases of "incipience" has remained much more elusive, however. Several instances of "villages" without identifiable domesticates are now known, but so far these also show little trace of relative cultural or technological complexity. Thus, understandings of the natural and cultural mechanics of transition and change, from the still earlier cultural phase of intensified hunting and collecting to those of the earliest effective food-producers have remained highly speculative.

It may also be noted in passing that for parts of the Near East the general fascination with the problem of the appearance of the earliest villages has led to some neglect of the immediately subsequent phase of developed villages and earliest towns.

The Joint Prehistoric Project of Istanbul University's Prehistory Section and of Chicago's Oriental Institute completed its third field campaign in the Diyarbakir province of southeastern Turkey in December 1970. Excavations were again concentrated on an early village site called Çayönü

Tepesi (38° 16' N; 39° 43' E), a low oval mound of about 250 meters by 150 meters adjacent to a tributary of the upper Tigris. Additional test exposures were also made on Gerikihacıyan (38° 14' N; 39° 58' E), a somewhat smaller and later mound of the developed village range (1).

Modest exposures made at Çayönü in 1964 and 1968 indicated the remains of a prehistoric village of very early farmers, settled somewhat over 9,000 years ago. (There were also minor traces of subsequent protohistoric and early historic occupations on the mound, but these were restricted to its northeastern quadrant, and are not part of our concern here.) Our 1964 and 1968 exposures showed that the original inhabitants of the uppermost prehistoric layers knew at least domesticated sheep, pigs, dogs and probably goats—basic elements of the original food-production pattern of the western cultural tradition. Unfortunately, the plant remains from the work of the first two seasons were not well enough preserved for reliable identification. The work of the first season already showed some hint of architectural complexity, remarkable relative to the age of the site. Furthermore, although the Çayönü people had not yet learned the potter's craft, they made simple metal tools by cold-hammering native copper (2).*

The 1970 excavations considerably expanded knowledge of Çayönü, both as to areas exposed, total depths of deposit, and as to artifactual and nonartifactual yields. The rectilinear stone foundations of our newly cleared series of buildings indicated a very considerable and truly architectural sophistication for a settlement of so early a time (Figs. 1-7). In one instance, the broad central room of a building was floored with a concrete in which a surface layer of salmon-pink colored stone chips had been set, then ground and polished. This terrazzo-like pavement also had a pattern of two pairs of lines made up of white stone chips. Unfortunately, the center of this paved area had been broken away. We know of no earlier evidence of such cement-terrazzo pavement, just as we still have no earlier evidence of hammered native copper. In several instances of buildings destroyed by fire, remarkably large clusters of various artifacts—tools, weapons, objects of daily use—were recovered in the exact positions of their orig-

* Pottery was in fact recovered, primarily from the northeast quadrant of Çayönü, but pertained to a restricted and considerably later occupation. Its area of distribution was delineated in 1968 by the September intensive surface survey (5).

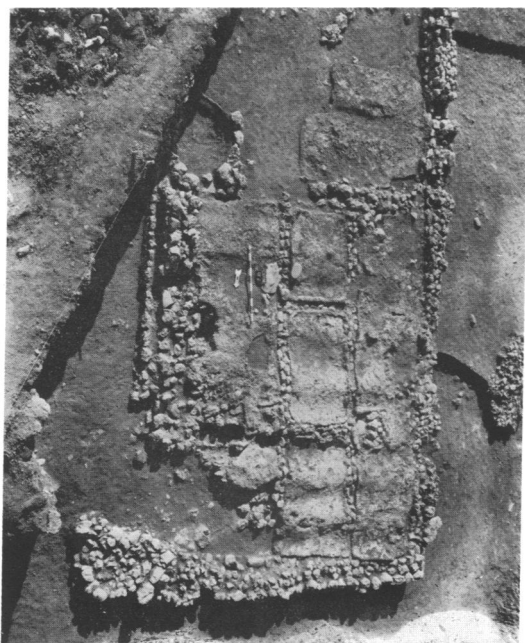


FIG. 1. Building EF-2 with stone foundation joists (presumably allowing ventilation under wood and plaster flooring), with plaster floor in place. (Phase II).

inal use. Two partial house models of unbaked clay appeared in one of these clusters. Perhaps the most important result of the 1970 season is that the sequence of layers exposed appears to span the transition from an almost totally "wild" inventory of plant and animal food resources to one including the domesticates noted above.

If the appearance and development of domesticates is considered, it is clear that morphological changes took place in both the plant and animal forms involved, as the process of domestication proceeded (3). One definition of "effective"

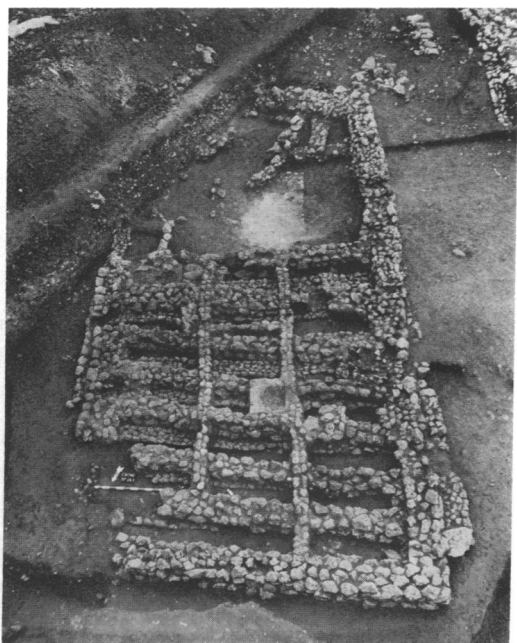


FIG. 2. Building EF-2, with stone foundation joists, after removal of plaster flooring. (Phase II)



FIG. 3. Building U-9 foundations with various objects *in situ* on room floors. (Phase IV)

domestication might be based on the presence of plant or animal remains that are clearly distinguishable morphologically from "wild" remains. Such would be "primary" evidence of food production (as against "secondary" or purely artifactual evidence, which is often equivocal; for example, "sickle blades" imply reaping but not necessarily purposeful planting). Just as clearly, however, some still unknown earlier period of time must have gone by—after the first manipulations of plants and animals by humans in directions that might lead to domestication—before there would be morphological evidence that paleobotanists and paleozoologists can now recognize as sure traces of domestication. Until now, in Southwestern Asia at least, our solid evidence for such a range of "incipience" of domestication has been very slight, hence our conception of such a range has remained largely a heuristic one. However, as we suggest above, within the last

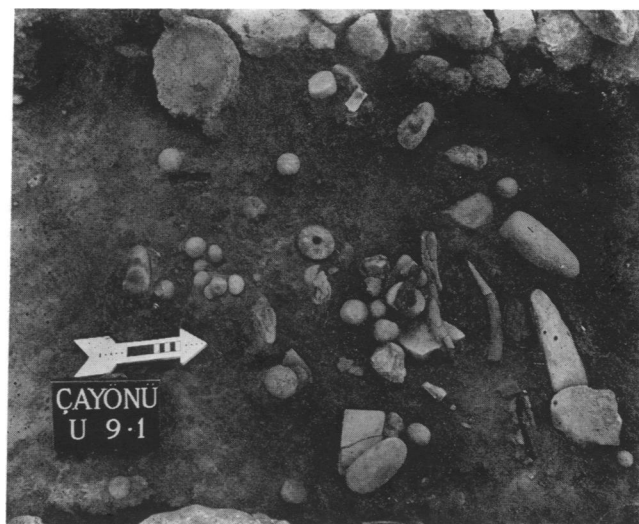


FIG. 4. Cluster of objects *in situ* in building U-9.

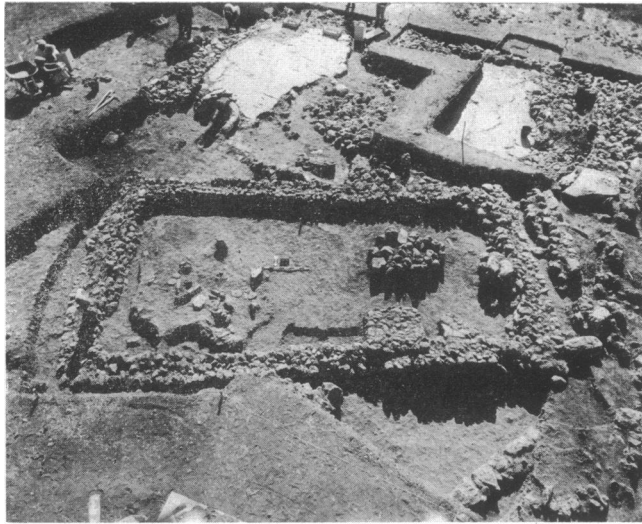


FIG. 5. Foreground—foundations and scatter of objects on floor of upper level building U-4. Background—portions of cement-terrazzo floored building X-3 (our Z-shaped baulk later removed). (Foreground, phase V; background, phase III)

decade about six instances of village-like sites have appeared with little or no evidence of the morphological traces of domesticates (4). In each case, moreover, the artifactual yields of these “villages” have suggested still relatively simple levels of technological and architectural activity and, in some cases, perennial occupation might be questioned. Çayönü thus appears to be unique (in the present state of knowledge), given its technological and architectural complexity for a time range when the transition to recognizable domestication appears to have been taking place.

During the field season of 1970, five major goals determined the direction of excavations and research. The primary objective was the collection and analysis of large and well-controlled samples of faunal and macro-botanical remains from within the various cultural contexts of the site. Second was an attempt to uncover sizeable areas of the earliest occupation levels. Third, work was designed to give a maximum architectural exposure in the upper levels, in addition to the deeper soundings. The fourth goal was to continue the work begun during the 1968 season concerning the relationship of surface and subsurface artifact distributions and the possibility of predicting the latter on the basis of the former (5). The final goal of this season’s field work was to proceed with excavations and recording in a fashion that would enable rigorous locational analysis of the complete artifactual inventories and food resources as they were found on the site.

The two main areas of the site worked from October 19 to November 30, 1970, were adjacent to those opened in 1968. The location of the 1968 work and the precise areas of the 1970 excavations were determined on the basis of the results of the intensive surface survey carried out in the autumn of 1968. Approximately 600 square meters were exposed during the 1970 season, with over 800 cubic meters of earth moved. Sterile soil was reached in parts of the two major exposures, showing that the depth of cultural deposit at Çayönü varies from 4 to 5 meters.

A tentative chronology of five phases of occupation for the prehistoric (preceramic) sequence at Çayönü is based on the results of the 1964 and 1968 seasons, and the preliminary

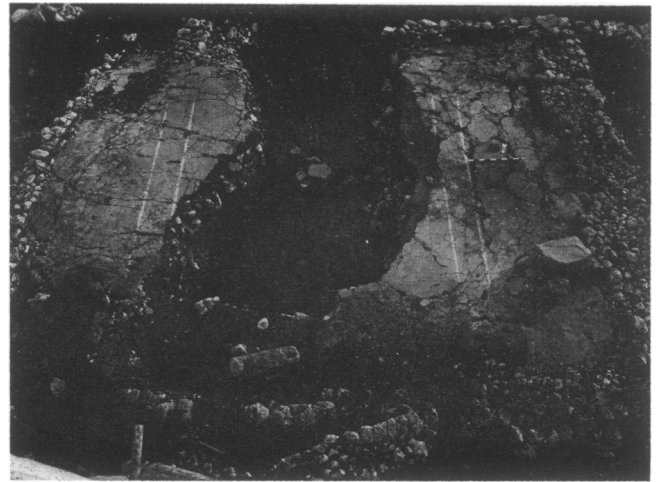


FIG. 6. Foundations and cement-terrazzo flooring of building X-3, showing later disturbance in center. (Phase III).

analyses of the material from the 1970 excavations. The temporal span of this sequence is not yet known, nor is it yet clear whether these phases were continuous. The answers to these questions await more detailed examination and computer analysis of the finds of all three seasons, as well as the results of a number of radiocarbon samples submitted to the Gröningen Laboratory for dating. A brief summary of evidence from the 1970 season concerning each of the five phases follows.

The earliest prehistoric layers, phase I, are best known from a 6.0 by 6.0 meter sounding in the center of the site. The most characteristic features of this phase were pit-ovens varying in diameter from 1.2 meters to 2.0 meters and in depth from 30 cm to 50 cm. Large quantities of charcoal were obtained from these features, but few seeds were present; the main component of the charcoal was tree bark. Only small fragments of walls were found in this sounding, so the configuration of whole structures during this phase is still not known.

Phase II has been termed the “grill building” level, because of the unusual type of stone foundations that characterize it. During 1970, three different areas of this phase were excavated, which—when added to the two areas uncovered in the 1964 and 1968 seasons—yields a significant sample. In 1970 two grill-like structures were found, one of which consisted of a succession of at least three superimposed buildings. The middle structure in this series was about 5.0 by 10.0 m in size and retained much of its plaster floor, in addition to interior partition foundations. The distinctly rippled nature of this plaster floor lends support to a hypothesis that the basal foundation walls of heavy stones were spanned by some sort of perishable supports, upon which the floor and partition walls were constructed.

The chipped-stone inventory from these two early phases is in most ways similar to that of the rest of the site, with a heavy emphasis on flint blades, most of which were unretouched. Less than 10% of the blades showed the shiny edgeware called sickle sheen. Retouched tools constituted about 5–10% of the pieces of flint, with cutting, scraping, and piercing tools predominating. The ratio of obsidian to flint pieces was low during these early phases, varying between 5 and 25%. Ground stone beads, pendants, and bracelets were common in this phase, as were bone tools and larger ground

stone implements such as celts, querns, handstones, and hammerstones.

Phase III is poorly known in terms of domestic architecture. The two predominant features of this phase as we now know it are an open area with two vertical free-standing stones and a 9.0 by 10.0 meter structure with the brilliantly executed terrazzo floor. This floor is constructed basically of white limestone cobbles and pebbles set in concrete and varies from 5 to 20 cm in thickness. The limestone was evidently crushed for this purpose. A surface layer of primarily salmon-pink pebbles, 1–3 cm in diameter, was set into the concrete while still wet, as were at least two sets of parallel strips of white pebbles, to make white bands 5 cm wide and over 4 meters long. After the concrete had bonded, the entire surface of the floor was ground smooth and polished. Not only was the bond strong enough to support this grinding, but the concrete has remained extremely hard for over 8500 years. The walls of the structure were buttressed interiorly.

Phase IV of the Çayönü sequence has been termed the "burnt brick" level because of the abundance of sun-dried mud bricks of structures in this phase that had accidentally-fired walls. In 1970, an intact stone foundation structure of this phase was uncovered with almost 200 artifacts *in situ*, and with doorways and walls preserved to between 50 and 100 cm above the floor level. This 5.0 by 8.0 meter building was made up of six or seven small rectangular rooms, each with its own characteristic yield of tools. It seems to have been a workshop utilizing mainly ground stone and bone implements. Two nearly complete (sickle?) blade hafts of deer antler and a dozen marine shells are included in the inventory. Excavations elsewhere in this level produced several caches of large-sized obsidian implements, including blades, points, and specialized tools that measured as much as 20 cm long, and also a single obsidian flake weighing over 400 g. In general, the obsidian inventory of this phase has a greater relative importance than in the earlier levels. In numerical terms, there are as many pieces of obsidian as of flint in Phase IV.

Phase V, or the final preceramic occupation of Çayönü, is represented by a number of complete and fragmentary structures. The best example from the 1970 season was a single-roomed structure, 5.0 by 9.0 m, with nearly half its floor area preserved *in situ*.

Probably the most important information of the 1970 season came through the work of the team of natural scientists on excavated and floated materials. Preliminary analysis of the animal remains by Charles A. Reed (Univ. of Illinois, Chicago Circle) suggests that the faunal resources utilized by the inhabitants of Çayönü during Phases I and II were predominantly (if not completely) wild. The animal-bone yield included *Bos primigenius*, *Sus*, *Cervus*, *Dama*, *Ovis*, *Capra*, and various smaller animals. The dog is the only domesticate found from the earliest levels upwards (6). The material from Phases IV and V offers a different picture; sheep, goat, and pig—some domesticated, some most probably so—form the greater part of the animal remains, although deer and wild cattle were still being hunted in considerable numbers. The definite conclusion is of a shift from complete dependence on wild animals for meat to predominant reliance on domesticated mammals.

This transition from wild to domestic animal food resources seems to be paralleled by the preliminary analysis of the 1970 macrobotanical remains recovered from the excavations by



FIG. 7. Detail of cement-terrazzo floor, building X-3.

Willem van Zeist (Biologisch Archaeologisch Instituut, Groningen). This still very incomplete evidence suggests that in the earliest levels of Çayönü, the basic botanical resources collected were pistachio, almond, wild vetch, and wild forms of emmer and einkorn wheat. The top levels show the presence of cultivated emmer, peas, lentils, and vetch. The very fragmentary nature of this evidence requires that no firm conclusions be reached through the preliminary field study of this material alone.

On the basis of the above evidence, we suggest that Çayönü is a site where it may be possible to study both biological and cultural processes crucial to and accompanying the domestication of plants and animals. We are currently conducting a functional-stylistic analysis of the artifacts from this site as they relate to the architectural units, to the food resources utilized, and to their horizontal and vertical distribution within the site. A form of locational analysis is being utilized on the *in situ* material and on the statistical patterning of artifacts found throughout the site. Computer programs will be used to determine functionally and morphologically defined tool types and associated tool kits. This data will then be juxtaposed against the architectural data to derive information concerning activity areas and the functional nature of the structures.

At this point in our research, we are examining four major hypotheses with the analyses of the archeological data. The first hypothesis is simply that the preceramic sequence of occupation at Çayönü is reasonably continuous. The importance of being certain about this in relation to the problems of plant and animal domestication is obvious. The second hypothesis is that surface- and subsurface-artifact distributions are related, so that a description of the first will allow some measure of prediction of the second. The third hypothesis is that the shift from a dependence on wild-food resources to a reliance on basically domestic ones is accompanied by a shift in the artifactual and architectural inventories. The final hypothesis is that increasing dependence on agriculture by a community leads to increasing technological, economic, and sociological differentiation and specialization.

Further specification and more complete examination of the evidence that may bear on these hypotheses await additional research in the laboratory and in the field. Thus, our work in

southeastern Turkey will continue to be directed toward an understanding of this major transformation of the human career as it took place in Southwestern Asia.

The work of the 1970 season on the developed-village-phase site of Gerikihaciyan involved expansion of the same three general areas tested in 1968, after the systematic intensive surface survey of the site in that year (5). Gerikihaciyan was chosen for excavation because of its surface yield of sherds of painted pottery of the style known as Halafian. This painted style has been known for some years from sites in the upper Euphrates-Tigris drainage system, with extensions to the East Mediterranean littoral, but the full inventory that the pottery was part of has never been adequately described. The "Halafian period" will probably prove to have been a range of well-developed village-farming communities of somewhere around the seventh millennium B.C. Roughly 350 m³ were removed in our clearances at Gerikihaciyan in October, 1970, and a depth of deposit of 3.0–3.5 m was established. There was clear indication of a later occupation than that which yielded the Halafian-style painted pottery, but the question of its relationship (or lack of it) to the Halafian levels demands further study.

The intact stone foundations of one building of the "tholos" type (i.e., a round room with an adjacent rectangular chamber known from Halafian-type sites) were exposed, as well as portions of six other round structures (without adjoining rectangular rooms). All seem to represent domestic architecture. At least two of these round buildings had plaster floors, and the walls of all had seemingly been constructed of mud brick and/or *touf*. Portions of several straight walls were also found, but no plans of whole rectilinear buildings were recovered. Associated with the architectural remains was fine-ware painted pottery of the Halafian style (about 4500 sherds), together with much larger quantities of plain-ware (about 30,000 sherds), as well as various small objects that included incised pendants of the type found at Arpachiyah and other Halafian sites in northern Iraq.

In addition to these finds, charred plant remains and large quantities of animal bone were recovered. Preliminary analyses by van Zeist and Reed indicate the use of legumes and the presence of domestic wheat and barley, as well as of domestic sheep, goats, dogs and pigs. Cattle were also present

but their status—domestic or wild—is as yet uncertain. Charcoal for radiocarbon determination was secured from the lowest Halafian levels reached in 1970, while a determination by Gröningen from the upper contexts exposed in the 1968 season (and, therefore, of very late- or post-Halafian age) is now available: 4515 B.C. \pm 100 years.

Tabulation and analysis now in progress of the Gerikihaciyan material (in particular of the painted pottery) will not only enable us to describe this prehistoric community and to compare the material both quantitatively and qualitatively with that from other Halafian sites, but also to continue testing hypotheses formulated on the basis of the 1968 intensive surface survey.

In sum, we feel bound to assume that the process of developing domestication had some concomitant degree of relationship with the establishment of settled village life, and that Çayönü offers an excellent opportunity to study these developing relationships. With the later site, Gerikihaciyan, a more fully consolidated (if still formative) aspect of a village-farming community way of life may be studied.

We are particularly indebted to our colleagues in the natural sciences, Jack R. Harlan, Barbara Lawrence, Marvin W. Mikesell, Charles A. Reed, Robert B. Stewart, Richard A. Watson, Herbert E. Wright, Jr., and Willem van Zeist. Their field participation with us and substantial portions of our field operations were supported by the National Science Foundation (GS-50, GS-1986). We also express our appreciation for the field participation of an effective group of graduate students, both Turkish and American. The latter were supported through a Ford Foundation grant for graduate field training.

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